

# Notice of Allowability

Application No.

10/540,932

Examiner

Robert A. Clemente

Applicant(s)

WU, KASHING

Art Unit

1724

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed 16 December 2005.
2. ☒ The allowed claim(s) is/are 1-5.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. Claims 1 – 5 are allowed.
2. The following is an examiner's statement of reasons for allowance:

The examiner did not find any prior art that taught or suggested air cleaning device with a photocatalyst, comprising: a body; a filter unit; a photocatalyst reaction unit which can generate a spiral air current; a forcible convection unit and a circuit control unit which can adjustably control operation of the forcible convection unit, wherein the filter unit is disposed below the body and has a front surface with an opening communicating with the outside and a rear surface in communication with the forcible convection unit, the forcible convection unit is disposed between the filter unit and the photocatalyst reaction unit so the filter unit communicates with the photocatalyst reaction unit, the photocatalyst reaction unit includes an air duct, a photocatalyst coating layer disposed on an interior wall of the air duct, two lamp holders, at least one ultra violet ray tube mounted on the two lamp holders, and a blow guide holder on which a spiral blow guide blade is mounted, ends of the air duct are hermetically connected to left and right side plates of the body, respectively, the air duct includes, at a left side, an air inlet port in communication with air outlet port of the forcible convection unit in a tangential direction thereof, at a right side thereof, and with an air outlet port in a tangential direction thereof, ends of each ultra violet ray tube are mounted on the lamp holders and axially disposed inside the air duct, respectively; the blow guide holder is provided located on the left side plate and located at

a position of the air inlet port of the air duct, and one of the two lamp holders is connected to the right side plate of the body, and the other lamp holder is connected to the blow guide holder.

US Patents No. 6,322,614 to Tillmans; 5,997,619 to Knuth et al; 5,891,399 to Oweson; 6,939,397 to Nelson et al; and 5,833,740 to Brais; and US Patent Application Publication No. 2003/002172 to Hall represent the most relevant prior art.

Tillmans, Knuth, and Oweson all teach similar air cleaning devices. In figures 1 and 2, Tillman shows an air cleaner with a filter (19) below a tubular region (14) with UV lamps (22) and fan (18) disposed in between the two. Tillman, however, does not disclose using a photocatalyst or providing a means to generate a spiral flow in the tubular region (14). Similarly, Knuth (see figure 3) and Oweson (see figure 6B) disclose air cleaners with a filter unit below a region with UV lamps and a blower or fan disposed in between. Both Knuth and Oweson also do not disclose using a photocatalyst or providing a means to generate a spiral flow in the region with the UV lamps.

Brais and Hall disclose air cleaners having regions around UV lamps that can generate spiral airflows. As shown in figures 1 and 2, Brais teaches an air purifier (10) with a tubular housing (20) enclosing UV sources (18, 20) and an inlet (22) having deflective baffles (36) that could generate a spiral airflow. In figure 2, Hall shows a similar air cleaner with an ultraviolet illumination section (5) having UV lamps (10) and a fan or fixed baffle (9) that can generate a spiral airflow as shown by the arrows in the figure. Neither Brais nor Hall, however, teaches or suggests using a photocatalyst or having a tangential inlet and outlet to the duct with the UV lamps. Nelson, as shown in

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figure 3, discloses a similar UV section, but does not distinctly disclose that the end cap (24) serving as a baffle can generate a spiral airflow. Nelson does disclose, in column 7 lines 31 – 37, that a photocatalyst can be used to reduce odors and remove volatile organic compounds.

A combination of Tillmans, Knuth, or Oweson; Brais or Hall; and Nelson, even within proper motivation for combining, lacks, at least, the air duct having a tangential inlet and outlet port.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Other references listed on the PTO-892 (Notice of References Cited) are considered to be of interest disclosing similar devices.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Clemente whose telephone number is (571) 272-1476. The examiner can normally be reached on M-F, 8:00-4:30.

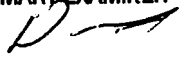
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert A Clemente  
Examiner  
Art Unit 1724

RAC

DUANE SMITH  
PRIMARY EXAMINER  
  
9-12-07